Notebook Series -- Notebooks by Edison
Notebook, N-14-08-07

This notebook was used during the period August-September 1914. It is the second of a four-book series, preceded by N-14-04-30 and continued by N-14-09-30. All of the entries are by Edison, except for some small notations by Sherwood T. (Sam) Moore. Many of the entries relate to the transfer and printing processes involved in disc record manufacture. Included are notes describing results obtained with various experimental varnish compounds. Also included are entries on the synthesizing of phenol (one of the ingredients in varnish) from benzol. These experiments were necessitated by shortages of chemicals formerly purchased from Germany. A notation by Edison complains that he was "Forced to this improvement by the War -- Thus science triumphs over art." Also included is information on the amount of carbolic acid on hand as of August 26, 1914, and the cost of chemicals from the General Chemical Co. Additional entries pertain to experiments by Charles T. Dally on patching discard records (cracked or not filled) with varnish and to distillation experiments by Jonas W. Aylsworth and William W. Dinwiddie. Entries toward the end of the book include an extended description of problems with varnish, as well as tabulated results obtained with experimental varnish compounds in July-September 1914. These results include notations of the varnish lot number, the weather, and the percent of successful transfers. The notes indicate that Archie D. Hoffman assisted Edison with his experiments. The front cover is labeled "No 2 Disc." The pages are unnumbered. Approximately 150 pages have been used.

July 29 7 1914

Blank 842–855 —

879 2/10 Para 6% Penta – 7 hours oven
120 Transfd

83% Transfers

Pull outs	12
Ckd waxes	4
Ckd Var	1
Mechanical	3
	20

plates

Bubbles	9
Uneven	162
Dirt	4
Rough	5
Dimples	3
Chipped R	1
	184

Unoven plates 248

867 Var blank 855 oven 1-2 7 hours
156 Transfd

75% Transfers 1/10 Para 4% Penta

Pull outs	27
Ckd waxes	6
Ckd Var	3
Mechanical	3

All of these look fine, nothing checks up

867-V · 1/10% Para 4% Penta

Transfers 70% 2676 Transfd plates discard

Pullouts	637	Bubbles	115
Birds	45	Uneven	74
Ckd Weave	58	Dirt	69
Ckd Var	27	Raised	20
Mechanical	33	Ckd	7
		Dumpies	115
		Chipped R	37
			437

Uneven 6276
Patched 73

Another 878 Var 1/10% Para 6% Penta
168 Transfd 80% GR
Rejects

Pullouts	25	Bubbles	34
Ckd Weave	7	Uneven	2
Mechanical	1	Dirt	2
		Raised	4

Consol
Bubbles 62
Uneven 386

868 Blanks –

25% ground blanks 71% Ibm 180
75% Req recorder

Transfer 93% – 149 Transfd

Pull out 1
Bind 2
Ckd Van 6

632 Req Van

---

897 blanks –
25% ground Blanks 56% Ibm 180
75% Req Recorder

892 – 92 Transfd

Transfer 90% OK

Pull outs 3
Bind 1
Ckd Van 4
Machine 1

866 Blanks

632 Var 50% phenol resin + 50% Rosin used in blank

100 Transfer 43% OK

Ckd wavers 6
Ckd Var 6
Weakness 5
Burst out due to blanks 40
Total 57 Discards

880 Var blank 842-855

315 Transfer 87% OK

10% Para 5% Pecan Plaid discards

Cracked Center	1	Bubbles	13
Lift	4	Uneven	2
Pullouts	23	Dirt	3
Ckd Wavers	4	Ravers	2
Ckd Var	6	Ckd	1
Weakness	2	Dumpers	2
		Chipped R	1
			24

unseen 606 plates

Bayway Melaporia Group —
35% Formaldehyde - Resin —

Powder Varnish -

12½ lb Resin
27½ DZ Nat alcohol
180 grams 6/4
57 grams Paraphenylenediamine
50 lbs Wood flour
1 lb Lampblack

Veneer 632 Reg Varnish
6 OK — all

899 - Veneer 1 para 8% 6/4 —
6 OK all —

WE now print + freeze —

Prints dont work good
Cracks, May be
blank gives some

Dalleys Experiments on Reg 6.99 -

3.5 mm to 12 mm Viscoelastic plates dried naturally & with heat (air) shows that plates are more even than ~~air~~ dried naturally, but more bubbles but Comfort - it appears to be better all round to heat dry -

877 Blanks Unbaked

These blanks have been made from Resin from Metapora Cresol from Bay County -

12.5 MP resin
27.5 DEN alcohol
180½ grms 6/4
57 " Pure
50 lbs Long fibre
1 " Lampblack

Fractifew 100 %

632 Reg Vac

OVER

Prints -

OK

~~Puffed edges~~

Discard puffed edge IIIIIII
Not full print most cases

Correct but puffed some on edges III
Correct Poor print. 1

We took some of the 877
blank as used on previous
page ~~B~~ Baked them 2 hours
at 730 ~~[illegible]~~ — There was
puffed Edges but not near so
bad as unbaked
632 varnish used

Transfers 12 ACCEPT 100%

Prints
OK 5
Ducardin Edges puffed up 6
Comel puffed Edge 1
Cracked 1

40% OK —

There is no puffed Edge on these
showing that increasing
from 9% 6/4 to 8% 6/4
has killed this bug
But blank gives poor
prints, ~~that~~ it gives
away at edges in places

906 Blank
Mix lot MP Crescent Bay Cream
8% 6/4 — 899 Vari

Transfer — OK 4
Cond 2 — small part edge flowed out

632 Vari OK 2
Crkd 1
Commercial 3 — Edge blank flowed out

Print of blank - 632 Vari
OK —
Cracked, Edge ||||| at poor prints
Cond 1

Print of blank but 899 Vari —
OK 1
Cracked at Edge at poor print 1
Poor print on Margin 11
Cracked Edge Minor 11

85

12/100/96/63
400

Bay co ay MP — 904 P Blank —
40% formaldehyde used to MP —
11.7 Straight 6% 6/4 — hair found 1 ½%

632 Var

Transfer
OK 5
Discard 1 — pulled out 3" sq.

Prints —
OK IIII

None puffed at non filled edges —
all are little shy of filling out 2d ½ but OK

899 Var Dup of above

Transfer
OK IIII
Cond 1
Discard 1

Print
OK III

Most have edges not filled but are OK

Not packed

Moore unpacked Edges
of 60 rag blankets only 80% required powder
found one edge burnt out
Dhaoung Metapore too
brittle rain —

Not backed
909 - Metap Bayway 40% formed
0,8 from Para — 6% 6/4 —
1/2% Para.
Transfers - 903 Vam
OK. ||||| ||||
Cracked at edge rejected 1

|| Returned freely
1 Stuck
Edges burnt out ||

Prints.
OK ||
OK Doubtful 1
Poor print & Cracked ||||
Cracked from Line 1
Not filled - ||

Cancel || (c)

16% & poor

[illegible]

910 Lot Not Baked Everything same as 909
Except accidentally more leaning
6.9 pure 10 Pounds in —

Transfer —

OK. ~~XXXX~~ ~~XXX~~ ||

|| rejected from previous frg
| chuck

Little Edges crumbled |
Much " " ||

Fruits

OK ~~XXXX~~ |

Corner — ||

Feed line cracks ||

Poor fill big Cracks |

66% —

but poor — poor fills
on Edge

OKs are right on edge, though OK they don't full well

Cracked where transfer Cracked at Edges

911. Same as 909 & 910 (not baked)

Except 10.5% Frez MPara left in -

10 returned freely
2 stuck

Transfers

OK |||| ||||

Edges cracked bad ||||
" " slight

Discard for one edge crack 1

Prints

OK ||||

MG Poorfill + Cracked ||||

Cracked 1

Bad line crack + poor print 11

33% OK but poor

Not baked —

915 Blanks — 97 + 98% Barrett Mfg Co —

7.5 free ~~Stuff~~ Van 903 —

2:16%. 6/4 — on account of small amount of free MP in resin —

5% base —

Transfers — 1/2% Pure

OK — |||| |||| Will print all —

Edge burst |

No edge burst |

Lift. Cracked ||

Prints.

OK || —

Puffed up Edges |||| ||||

Poor print |

Give away (Varnish) |

16%

NG

Not Enough 6/4

12 20 16

913 Blank Not Checked -
903 Var

97-98% Barrett,
6% ~~straight~~ 6/4

7.56 free Barrett ½% Para

Transfers

OK |||| |||| bad Edge connected ||||

Concl || - as far as Blank is Concerned
one hole pull out to blank + 1 big pull out in Var

Prints.
OK.|||

Poor present |||||

Concl ||

Proffed Edges

41%

12) 50 / 49 / 20 | 41

Not baked.

916 Blank

903 Var -

95% Crude Carbolic Barrett,
6% Cresylic. ½% Para

8.2 Free Carbolic —

Transfers -
OK. ||||

Edge crushed ||||

Prints
OK. ||
Poor print ||||

None
Puffed Edge

Cond ||||
Cond doubtful |
Crucked due to Poor Print |

50%

.8) 4 24 (5.13
4 0 14
2

We are now trying to make Phenol from Benzol synthetic by the Benzenesulphonic process

75 Lbs Benzol	$ 2 48
530 Lbs H_2SO_4	4 24
Carb Lime. 75 Lbs	0.07
Na_2CO_3	0 70
Caustic Soda	5 56
	$ 13 05

Yield 91 Lbs Phenol.

14.3 Cents Lb without labor.

8/19/14

921

50 lbs Mita Para Cresol (Bayway)
20 " Formaldehyde

Yield 35 lbs
Free Cresol 17.6%
Recovered 13 1/4 lbs

The M.P. Cresol resin in #920 is from resin #921

Doesn't seem to be as good when Resins are mixed as when MP + Phenol are made together in Dry Kettle

Reg 903 Var

920 Blank — Not Baked

Mixture of 75% MP Bayway Cresol with 25% Reg Phenol Cresol
6% 6/4 straight,
1/2 % Para 4 to 1 parcoley

Transfers OR ||||| ||||| ||
All OR 100%

Slight crushed Zap 1

Prints —

OR ||||| ||

Poor print + Crack off sides 1

Poor print in Music, well reprint 1

Poor print + feed line crack 1

Top of walls broken off 1

12/70 1/8
1/0 0

[35]

919 Resin in Digester made,

30 lbs MP Creosote Bay Way
10 lbs phenol
16 lbs formaldehyde

Made same as we make phenol resin

Yield 19 3/4 lbs —

10.3% free MP & Phenol —

40/200 (50 49.3%

Promised

83%

Not Baked

918 —

75% MP Bayway
25 phenol — in Digester —

6% strength 6/4,
1/2% Para — 4 to 1

Resin — 903 Varnish Veneer

Transfer —
OK. ||||| ||||| ||

Edge Crushed 1
Slight " 1

Prints
OK. ||||| ||||

Line crack Poor print & second 1
Poor print 1
Consol 1
fixed line crack diamond 1

83%

12/100 (83
9.
4

Not baked

Blank

917 –

2.27 % 6/4 – on 5 % Cassia –

1/2 % Peru – 4 (s)

Lot No of Var 501 B

917:

The books are incorrect may be mistake & Reg blanks and

Transfers

OK. IIII IIII II

Print

OK. IIII II

Coucl 1

Poor print, Crooked edge music Discard 1

Poor print III

66.6 %

+ 3 Lots repeated

about 25 % of Cordale

✓12/80 (66.6

917.0

Not Baked

914

95 % Barrett Crude Carbolic –

30 lbs Crude

12 lbs Formal

4 1/2 lbs NH4

yield 18 1/2 lbs 8.2 % pure

Carbolic – 61 % yield

Dup of 917 Blank –

Still may be suspicious as the same lot of blank

Transfer

OK IIII IIII II

12/7

Another Lot of Transfers

Transfers

OK 𝍸 𝍸 𝍸 IIII

100% all OK — none crushed at Edge

18

Prints —

OK 𝍸 IIII

Not filled in Mucoic II
Poor print on Margin III
feed line Crack I
Comel Crack near edge I
Dreamd big Crack II

all these Cracks both sides, page overlap at same time

55%

Not Baked

9122 A

#919 Resin — 2.9% 6/4

on 5% Base 1/2% Paria 4 to 1

Transfers

OK 𝍸 𝍸 II all OK

Bad Edge Crushed I
Edge " I

Print 12 —

OK 𝍸 𝍸 II

100%

Dup 9122 B — these blanks made later than 9122

Transfers OK 𝍸 𝍸 I

Crack I —

91%

Print, OK. 𝍸 𝍸 II

CMJ

Gen Chem Co

Quote, 90 cents 100 lbs
for fuming SO_4 — 20% SO_3 —
In Drums Carload lots
1.00 Less than Carload
lots 1.15 per 100 lbs
Delivered at Orange
Drum returnable
if in good order
30 days or 1% Cash
10 days —

Dally's Experts patching discard seconds with varnish where cracked or lack of fill

Use seed Var with 6/4 increased to 10% of Resin & 2% Para instead of 1/2% —

Painted over crack then baked seconds for 1½ hour 150 @ 150 To condense then pressed in transfer press between 4 & 5 plates to finally harden —

Then Printed Ray

They seem OK & believe we can stop discards altogether & return with Varnish, Transfers & Prints & Correct every defect which we now discard for

Forced to this improvement by the War — Thus Science triumphs over war —

Not baked

922 C - Duplicate of 919B Resin - 1d-off
made in dry dioxane

Same blank as A + B Except
3.04 6/4 on 5% Basis — Yield 50%
11.1 free MPP in resin —

1-Very delete [illegible]

Transfer
OK. 卌 卌 ||

100%

Print OK. 卌 卌
Cond ||

100%

Not baked

922 C (Dup 919 Hoffman)
as an least page its a Dup
To let Transfers stand
24 hours before printing

3.04 6/4 Transfers 1.50 PM 20 stacks

OK ||||| ||||| 12

Cracked |

will hold 48 hours before Printing —

Inspected after 131 hours

Transfers OK ||||| ||||| — 12

Cracked |

will keep till monday Then inspect print

Prints

OK ||||| ||| — 8

Poor print ||| — 3

No cracks

12 | 80 / 77.0 / 3 | 72

Not baked

2.9.64 — Lot 919

Transfers to be held 48 hours to see if Crack

Transfd Aug 20 2.39 pm

OK ||||| ||||| } 11 only in the lot.

Cracked blister 1.

After 48 hours rest

Transfers OK ||||| ||||| -

1 Ckd raise -

Will hold till Monday — inspect & Chem print

After 135 Hours no [illegible]

Prints OK 11

No cracks.

Bay Way - MP Cresol
400cc

15 cc came off below 165 Cent
136 cc " (165) 183-192
201 cc 193-195
39 cc 195 195.5
3 cc Residue

Merck gives Boiling P

Ortho 187-9
Para 198
Meta 202

95% Barrett fused in dehydration, decant acetic coarse light, W2 Tank 400 cc redistilled it

95°-110° Cent 16cc - 3/4 water
189-192 55% 220 cc Spec G 15°C 1.034
193-196 16.25% 65 cc mostly came off 193-197 - Spec G 1.031
196-198 18.25% 73 cc Spec G - 1.027
Residue black out limpid 20 cc 5%
Total 394 cc 98.5% (total used)

Dimroth distilled it -

97-99% Barrett 400 cc

2 cc came off below 202 Cent
21 cc " 202-206
285 cc " 208 210
60 cc " 210 213
23 cc " residue

No4 924 blank Transfer OK ||| } 6 –
Bleed Blister Ckd. |||
wet print – Slight Blister 1
OK Red Center ||
Prints OK ||| – } 3

924 Blank

921 Resin – Temp in dryer kept down so not to force Resin –

8% 6/4 ½% Rosin 4 to 1 Powder

1 =	2½	mm Continuous	2½	mm 1000 CC
2	4	"	3½	"
3	5	"	3	"
4	5	"	5 –	"

No1 – Transfer OK |||| } 6 =
924 blank Blister Ckd 1
Edge Cracked 1

Prints, OK |||| } 5 –
poor print Cracked 1

No2 Transfer OK |||| } – 6
924 blank Blister, Ckd 1

Prints OK 1 –
Poor print ||
feed line crack ||
} 5 –

No3 Transfer OK – ||||
Left Cracked 1
wet print – Blister 1
} – 6
Cracked Edge Bad 1

Print OK ||||
Cracked 1
} 5 –

No 4 Transfer OK ||||
Blister Ckd ||
Blister Council 1-mg
Cooked Center OK 1
Print OK
Poor print & Cracks 1
Poor print, Blisters 1

6 -

None OK -

gwa —
925 Blank

921 Room
8 4/. 6/4

Temp on Dryer Kept down hot to fine powder
4 to 1 —

No 1	2 1/2 mm	Contrast	2 1/2 mm	1000 lbs
2	4	"	3 1/2	"
3	5	"	3	"
4	5		5	"

No 1 Transfers OK ||||
Print OK ||
Council ||
Not quite filled in reverse ||

6 - Edge Cracked ||||

No 2 Transfer OK ||||
Blister Ckd ||
Print - OK ||||

No 3 Transfer OK ||
Blister OK 1
" Ckd |||
Print OK ||

6

Notice - no Crinkled Edges -
Whole blanks flows a little

Rounded

926 - Resin — 927 blank

50 lb { 75% 95% Crude Carbolic Barrett
25% Phenol
30% 4# formaldehyde -
Yield 20 lbs
free acid 15.1%
Recovered 12 3/4 lbs } Resin

Blank 927 - Varnish in blank powder
6% 6/4 Cresylic 1/2% Para
4 to 1 powder Not baked

Transfer - OK

5 oz lot
903 Varnish -
all free solvent

Cracks edge faint 1
Big pull out 1

Dally dont get enough stuff in his fine deep pull outs – or holes is full of dent – must get fine drill + clean it out –

Dally Repair, Originally Recorded Aug 22 1914

White spot.
OK. IIII IIII IIII I

Cracks, OK II

Pull out. Discard – III new cracks came in in Pouring

Pull outs OK II

It looks as if the repair process is a great success. Holes should be cleaned & sufficient Vent used as on drying an excess blowing about – Only bad phenomena is new cracks show up not originally in – well fond of this comes in preliminary baking of repairs or in pouring

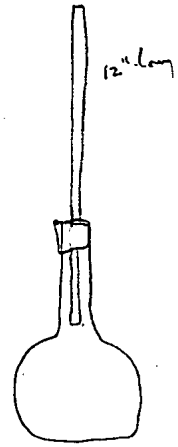
(591)

Cresols require 30 to 40% of Formaldehyde 40%

Phenol 50 to 60% Formaldehyde

If 100 grms Cresol used then use
40 grms 40% Formal ⊕
25 grms Ammonia Sloo
50 grms " quick | action.

Put back on hot plate Tuesday 9 am —
took off 3 pm — drove off on burner some of the free liquid & when got to thick stage poured out on Pie plate —
The High boiling ones is chemical agive biggest yield —
The residue, I kept on too long it condensed —
Residue is best of all for yield —



30 cc Barrett 95%
12 cc Formaldehyde 40% .

Put on steam plate —

Dunwoldies Distillation 3 boiling points,

400 cc

No 1	189-192 —	220 cc
2	193-196 —	65 cc
3	196-198	73 cc

Dunwoldie says it ~~[illegible]~~ now ~~[illegible]~~ Resin — before 9 pm Saturday — Sunday 2 pm Sat.

On at 6 PM Saturday
~~Took off at 10 [illegible]~~

9 AM
Monday all condensed — No 1 clear & yellow No 2 harder & not clear No 3 Hard & not clear

Not Coated -

928 Blank - made of 926 Resin

4.16% 6/4 - 5% Gum

1/2% Pum -

4 to 1 powder

Lot 502 Van

903 Van

Transfer OK - ||||

All OK -

||| Slight edge Crush

Print OK ||||

Coined |

Poor print || — probably not fault of blank

Cracked on fold line |

Cracked Coined ||

50% without Coined

75% with Coined -

919 - Triplicate Bay Way to check -
37½ MP
12½ Phenol
20 Formaldehyde
Yield 30 lbs 40%

No 1. Sample is principally Ammonia which came off when still blew up

No 2 Came over 5 minutes after Superheater was put on, it was on 1/2 hour

No 3, is at end of No 2

No 4 is last mostly water from Superheater —

Run —

929 —
34 1/2 95% Barrett.
12 1/2 Phenol
17 1/2 formaldehyde —
12 1/2 % ammonia —
Yield 31 lbs —

Residue 11.3
Recovered 13.25 — 62 % of Resin

88% Recovery all together —

Daily Repair Experiments —

59 to 66 — Not baked beef
air dried 24 hours —
average temp about 85 Fah.

poured out on Pie dish

No 3	200-202 thin	Wt 26.25 grms
4	202-205	26.70
5	205-204	28.80
6	205-209	26.50
7	209-218	28.50 -

At normal Temp all are Viscous

205-209- + 209-218 } thickest greatest yield

There is considerable free Cresols to come off - to get hard resin -

The Residue was ok last when I put on burner to drive off some Cresol & Condensed to Rubber

Barrett 95 distilled by Drummond
6 portions 5 clear 1 Residue

30 cc of Barrett 95 - 10 cc formaldehyde —

On 3 pm — Monday

at 6.20. Residue Condensed to Resin -

at 935 none of the others have gone off to Resin — although cloudy when shaken

at 1130 pm - had to go home took all off the. 209-218 is very thick almost a resin the next thickest is 205-209 - the others are still liquids — tomorrow will put on again —

~~Took off~~ Tuesday 930 put on again - at 3 oclock took off & heated ~~each~~ on Bunsen burner drive off till thick -

JWA results of Distilling
97-98 Barrett

		Boiling Point of Product
1st Distillate	179–184.5°	187 to 190
2nd "	185–194	191 to 193
3 "	194–200	198 to 199
4 "	200–206	205 to 208
Residue still mostly fluid, cold		208 & Higher

Testing Distillates by Nördlingers Test

#1 Practically all ortho & some phenol 8.8 %

#2 Mostly meta & some ortho 37.2 %

#3 All Meta & Para 41.8 %

#4 Some Para & Xylenol & higher fluids 10.6 %

Residue Xylenol & higher Phenols 1.4 %

Distillates from making Resin
of 97–98 Barrett
BP 186–190
Mostly ortho & some Meta.

Barrett 97-98 25th day

Distilled very slowly by Dr. Donaldson

7 different products —
1st not used the other 6 used
30 cc of distillate mixed with
10 cc 40% formaldehyde —
Residue Limpid & black —

400 cc

No 1 —	42 cc	Spec Grav	1.039	at 26°
2	60 cc	"	1.039	"
3	74 cc	"	1.037	"
4	66 cc	"	1.034	"
5	70 cc		1.029	"
Residue	42 cc		1.024	"

46 cc lost Thru Corks Soaked up in Asbestos Etc

Duplicate of

Transfers OK ||||/|||| Edge Crushed |||

V small Crack ||

Not baked

930 Blank 919 Resin C.

3.32% 6/4 5% Basic – 4 To 1

½% Paris –

Transfers OK ||||/|||| ||. Slight crush edge |||

All OK

Prints – OK. ||||/

Doubtful Comel |

Comel |

Poor Print |

Cracked |||

50%

Duplicate of 931 -

Transfers OK ||||| ||||| ||

Edge Cracked ||||

Not Coated

931 Blank -

929 Resin -

3.18% 6/4 - 5% Beeswax - ½% Paraffin

4 to 1 -

Transfers - OK. ||||| |||||

Crinkled Edge 1

Left Cracked ||

Note some flow to this blank.

Prints - OK. ||||

Cracked ||

Poor Print ||||

Muddy in Middle

oozes out (Resin) from blank

10/40

Not Baked

Duplicate —

Transfers OK ||||| ||||| Curled 2 ||||

Pull Out 1
Cracked Blister 1

933 Blank — 929 Resin
6% ~~Straight~~ 6/4 — ½% Pana 4 to 1

Transfers OK — ||||| ||||| 1 Edge Cracked ||

Notched Blister 1

Prints OK ||||
Curled ||
Poor Print Cracked |||
Blister 1 — Same as Transfers.
in Music Poor print ||

11 (40 / 33 / 7) 3

The others removed from plate at 1.06 AM Wednesday
Put back on plate at 9:20 am Wednesday —
2 of them Cold were nearly soft did not flow when flask put on side

Took all off 1 pm —
#6 is Thickest

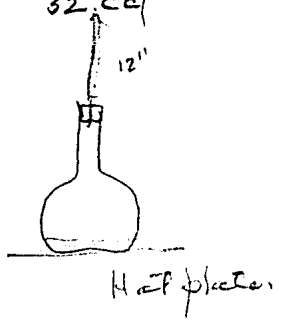
Poured in little Cream left on hot plate all night — 9 am Thursday
2 + 4 at 12 noon —

2 + 4 are pretty hard to finger nail but well penetrated, others softer
5 + 6 softest.

24th Aug

Barrels 97-99% —
400 cc

			Specg	
#1	all up to 202° no water	15 cc		
#2	202 - to 204	58 cc	1.039	26°
3	204 — 206	60 cc	1.035	26.5°
4	206 — 206.5	62 cc	1.035	26.5°
5	206.5 — 209	62 cc	1.032	26.5°
6	209 - 225 -	63 cc	1.026	27°
Residue - Therm 1/16 above residue		32 cc		



#1	3.75%
2	14.5%
3	15.
4	15.5
5	15.5
6	15.75
Residue	8.00
	88

48 cc Lost Nitrifiers 12%

Put on Hot plate 11 am Tuesday —
Residue taken off Tuesday 9.07 pm condensed to soft Recovery

not baked

934 Blank Resin 929-B —

37½ Barrell 95
12½ lbs Phenol
17½ Formaldehyde
12½ NH4 —

26½ lbs yield
8.7 free acid —

21 lbs Recovered —

934—929B Resin 6% [illegible] ½ Powder
Ktr 1 Blank

Transfer OK. ||||| Crushed Expo ||||

Cond 1

Rd left probably Cond 1
Big pull out to blank 1

935 Blank 929 B Racing -
2.41 6/4 5% B case 1/2 frame
4 to 1

Transfers - OK IIII IIII II Crushed Edge
all OK —

On hand Aug 26th 1914
Carbolic Acid

88130 Pounds

In store Room -	291 Drums	280 lbs each	81480
	7 "	330	2310
Building 19 =	12 Drums	280 lbs	3360
Silver Lake	3½ Drums	280	980
			88130

C9L

Not baked

JCO Aylesworth Expt.

937 Blank - 921 Resin —

9% 6/4 straight, 1/2% Para

4 to 1

Transfer OK ||||| | Crushed little |

big Pull out to blank || 50% —

Lift Cracked ||||

No use printing —

Not baked

9 WC —

938 Blank 921 Resin

10% 6/4 — 1/2 para

4 to 1

Transfer

OK ||||| |||||

Lift Cracked ||

Hollow wont print |

Print,

Edison On 4 pm Thursday

Alpha Napthol - quenched at CH_2O — " at 8 pm found the alpha Napthol Condensed to hard. — 9 tried mix CH_2O + heated hot would not melt but softened it dont dissolve much in alcohol but does in Benzol —

Beta Napthol CH_2O = quenched at

Edison On 4 pm Thursday

Bay Way MP 193° to 195° — 30 cc 10 cc CH_2O — 250 mlg Para

Hoffman No 4 bottle of recovered by superheating Cresol Resin in dessicator 30cc 10 cc CH_2O —

Ortho Cresol 30cc 250 mlg Para 12 CH_2O — at 8 pm no coloration or apparent action so I added the Para

C951

a Naphtol Condenser,
I put up a new flask 30 grams
Alpha 15 ~~g~~ CC CH_2O. 300 Mlg Para
on at 9 20 pm Thursday
at 10 40 its nearly 1/2
Condensed —
yield about 25 grams
~~Hello~~ hard brittle resin — nothing
free in it I guess.
Thus all Condensed at 11 pm —
I find its perfectly & Easily
sol in alcohol in
which is 6/4 —
The yield is good & resin
looks fine — nothing
but Water boiles over
This is the nicest working
stuff of all, its Easy

939 Resin –
25 lbs MP Bay Way
25 " Phenol
22½" formaldehyde
Yield 32 lbs –

Free acid 18.7
Recovered 10.25 lbs –

Not Baked

943 Blank 939 Resin –
6% 6/4 Wood – ½ Pma 4 to 1
Req 903 V

Transfer OK. |||| |||| ||

Split Var Pull out || Var not hard enough not fault of the blank =

Blanks not crushed at Edges – no crushed edges

Print – OK. |||| |||| 100%

OK Cancel

Poor print Cancel

944 Blank 939 Resin
5.21 % 6/4 5% Resin 1/2% Para 4 Tol

Transfers OK 𝍸 𝍸 || all ok.

Red spot [illegible] 1

Print –
OK 𝍸 ||||

Poor print 1
Poor print Cancel 11

[illegible]

942 Resin

25 lbs Baycoray MP
25 " Phenol
24½ Formaldehyde

57% Formaldehyde on phenol
40% on Cresol

Yield 51 lbs

Free acid 18.3
Recovered 12

Not Baked

945 Blank 942 Resin

6% 6/4 Straight : ½ pecan 4 to 1

Transfer OK ||||| ||||| 1

All OK –

2 Small thickness not cured Cured 1

Prints OK ||||| ||||| 1

91%

Cracked on Edge 1

946 942 Fowers

5% brass - 5.07%. 6/4 ½ pana 4 to 1

Transfers OK. 𝍸 𝍸 ||

Crushed Edge ||

all OK

Prints OK - 𝍸 𝍸

2 bad Varnish

947 Blank 939 Revin —
6.21% 6/4 6% Bonis —
1/2 Para 4 to 1 —

Transfer — OK ~~IIII~~ ~~IIII~~ II all ok —

Prints OK ~~IIII~~ ~~IIII~~ II all ok

948 Blank 939 Resin

Same as 947

but 20% ground powder

Transfer - OK. ||||

Left Cracked ||

Prints OK ||||

Cracked on Edges |

Not Cooked

949 Blank 919 Resin

50% 919
50% Phenol Resin -

5.9% 6/4 6% Base - 1/2 Para 4 to 1

Transfers — OK. ||||| ||||| ||
all OK -

Good Exp 1

Prints OK ||||||

Poor print ||||

Eventually 6% Base too high 1

258 old excel blanks

Old ~~419~~ Blanks Reprinted.

OK ~~IIII~~ III

feedline crack II

New labels don't work on old labels — must reprint with old labels, otherwise shows both labels —

950 Blank 921 B 50% Cresol Newsprint
50% Phenol Resin - Made Separate
and Mixed together on the Foreman
6% Hexamine 6/4 1/2 Para 4 to 1

Transfers OK. |||| ||||

Left Cracked ||

Presses OK |||| ||||

Comes |
Cracked ||

951 Blank 66 2/3 Cresol MP Resin
made separate
33 1/3 Phenol Resin made separate
6% 6/4 Straight 1/2 Para 4 to 1

Transfer OK. ||

Left Cracked ||||

2" pulled off ||

Cooked |

Cooked Ckd |

|

NG

Prints OK ||||

Left Cracked ||

Poor print ||

Feed Line Crack ||

2 unpainted

Not Coked

954 Blank

40% Cresol Resin Bay Oil

6% 6/4 60% Reg Phenol resin

Straight — 1/2 Para 4 to 1

Resins made separately

Transfers OK. ||||

all OK —

Prints OK. ||||

all OK

Slight crack edge 1

100%

953 Resin ~~[illegible]~~

1050 lbs MP Bay way
399 " formaldehyde — 38%
yield 736 lbs resin
70.5 lbs recovered

13.8 frs Cresol in resin —

23¾ hours making 1½ hour
unloading Resin very black
took 40 lbs air pressure to
unload —
Reaction very violent run up to
250 lbs on of min Safety Valve
Lifted [illegible] some pressure

954 Blank 953 Resin —

40% MP Resin 6% 6/4 strail
60% Phenol Resin — 4 to 1
20% ground blanks in it
½% Paris

Transfer OK. ||||| ||||| ||

2 were ng but no fault blow

Presses — ||||| ||||, OK — 2 not pressed —

958 Resin –

1050 lbs Bayscony
367.5 lbs formaldehyde 35%
Recovered 256 lbs
Free Cresol 16.2%

Reaction will, pressure went from 20 lbs to 110 lbs in 15 min –
Came back to 80 lbs, when distilling off water pressure went down to 20 lbs –
the reaction started over pressure went to 80 lbs again –
time 23½ hours 35 minutes to unload to 30 lbs over pressure Resin thick + foamy
Transfers OK ||| ||| || all OK

959 Resin.

40 Recovered Cresol from 953 + 958

Used 50 lbs Cresol
17.5 formaldehyde 35%

Yield 28 lbs
Recovered 21 lbs
free in resin 8.5 lbs –

Reaction very wild highest point 95 lbs pressure with steam on jacket – 9 hours to make resin
½ hour to unload –

Transfers OK ||| ||| || all OK

Top Trays of Crack

903 Lot 540 9/19/14
Blank 842-954 - 7 hours

302 Transfd
192 OK
110 Discarded

Left cracked 1
Pullouts 84
Cracked corners 3
" Varnish 21
Mechanical 4

Print Top
Ckd on Margin 36
" " Image
Poor prints 2
Total Printed 192
OK 151
73%

63% OK

Bottom Trays same as above

237 Transfd
95 OK
142 discarded

Pullouts 100
Ckd Var 41
Mechanical 1

40%

Bottom Prints
Total Printed 95
OK 77
Poor Print 1
Ckd Margin 16
Ckd in Image 1
81%

962 Blank Sawdust in sealed can from Solomon presumably Southern Pine
5% Rosin + 7% coatings -
Not dried -
Finer 53% went thru 180 mesh 96%
thru 30 mesh - Blanks top thick
20% ground blanks used -
Transfers OK None -
Cracked ||||| ||||
Red spots ckd ||
Pullout to blank || -
Welds OK — Blank squares round at Edges & grain crazy -

Dup of 962 without 20% ground blank
Transfers OK 1
Cracked by Edge grain crazy ||||| ||||
Left ckd ||

Thomas Robinson
Wood Pulp Bad

Sept 22 - We have been having very poor results since shut down on Labor day - Up to 5th transfers were averaging 88 to 90 & pulls 85 ammers then shut down & did nothing for 4 days when started up, transfers only 50 to 65% & enormous number of pull outs, by means of our Records we can see it down to Penta it was the beat of a big batch we had - The batches last more than a week & they are kept hot all the time & each day we take out what we want,

Thinking that perhaps Ferric Chloride was lacking in Penta I made batch varying 10 gallons & made 300 transfers containing 1/4% of $FeCl_3$ to 100% of Resin - The results were miserable and only got 16% good heat all pulled out, at the same time I made

this Experiment I thought perhaps it wanted free acid the Penta always has free acid so I used the 6 and penta as with $FeCl_3$ but left that out & added 1/8 of 1% to 100% of Resin + the Urea formaldehyde 300 Transformer got 95% and only one piece out would have got 100% good but there were some cracked wares due to too flowing of varnish so this Experiment Phenol w/o Want free acid I used HCl

We changed the old lot & started used to catch of Penta & this is working OK 85% it has free acid as Hoffman was told to use 3% of acid to get rid of the Urine they put in it at Mill + Chem Work out the acid - He uses HCl in Porcelain lined Kettle

After he gets them a washes out the acid, he uses it but there is some acid # H_2 will stop keeping it melted the whole week & will only heat up to soften while he takes what he wants & then put cover on & let it cool down this prevents the pentas from being cooked to death

Tonight I took some of the pentagent as it comes from mill & found it full of acid also very much iron

I find that for hours you can keep it just warm & stir pulled in water & the iron still comes out it seems to have an unlimited capacity for holding H_2 $FeCl_2$

If the iron is to be got out must have a stronger run

by power & frequent changes of water – Its not necessary to boil the water as Trichlorophyl comes off –
I have told Fwa to see Mell stop putting lime in Penta if they ever did – its not necessary. Old penta worked good & did not have lime in. He says he used to dimmish the acid so they could stop it. –

Also tonight. Fwa said if I put acid in the alcohol the 6/4 would give off its ammonia & free the formaldehyde
I find that neither in alcohol or water, saturated with 6/4 does the addition of HCl give sightest smell of formaldehyde

I find if 6/4 is dissolved in alcohol that the addition of HCl. throws down hard like crystals of a salt. I thought this was MethylCl, but on heating it enormous volumes of smoke comes off which is pungent & a large residue of Carbon remains —
The crystals are pure white that comes down —
Some of the crystals are soluble in alcohol & do not come down on evaporation gives white residue, I had an excess of acid —
Evidently 6/4 combines with HCl. to make a salt very soluble in water but not near as sol in alcohol as 6/4 —
but on account of large

I find the HCl combines with the Para in alcohol making it far less soluble but I think the alcohol is in such excess that it will not precipitate out I will find this out.

amount of alcohol we use, there will be no precipitation,

I have weighed out

No 1

145 grms alcohol
8 " 6/4
1/2 " Para No penta

125 milg HCl which is proportion used in Experiment where got good results - There is no precipitation

I now make 2 more tablets as above

No 2

has same as above but HCl increased to 250 milg

No 3

Dup increased HCl to 1 grain

By mistake 1 2 & 3 grain alcohol used instead Denatured —

~~145 grms Alcohol~~
~~2 grms Para~~
~~250 mlg HCl~~

~~Want to see if 1/4% HCl will precipitate the Para~~

~~No He used grain alcohol which dont work like Denatured~~

No 2 on filtering alcohol shows that 1 grm or 1% HCl is a little too much as there is a slight residue on filter paper, its brown & most like the HCl combin with para yet I see a few crystals of the white hair like cry—

It may be an impurity in the Para which is Crude para

Now using Denatured No 1—

145 grams Denatured
8 " 6/4
1/2 " Para CP from Dettman
1 " HCl—

to test acid to test paper

Acts different from green

No precipitate—

No 1 Continued) - The solution is just linked red & is clear so if anything comes down can't result.

There is no precipitation showing that the precipitation of brown stuff is due to impurities in the crude Para used by us - it darkens colored varnish but can still see thru it -

So this proves we can use up to 1% of hydrochloric acid in our regular varnish without precipitating anything out.

Providing HCl is put in last after 6/4 T Para has been dissolved

4

I think there is more than we need, we used 125 mlg but or 1/8 of one percent in the varnish we got good results tho - but of course the pesta had some HCl in it anyway how much but it couldn't be great ~~only~~ I think with pesta leached free of iron that 1/2 percent of HCl will be enough perhaps 1/4 will do, I will try it

We leached red pesta from Wyandotte & found no like as claimed by Jwa -

Later No 1 I found on standing precipitate and brown sediment just like Reg para

(HJ)

No 2 is 145 alcohol
8 6/4
2 pure Para WEH
1 HCl

On pouring in HCl gets black, can see thru —

When the Para is in Excess of the acid as above nothing comes out

Evidently the Para should not be entirely neutralized

No 1 still keeps throwing down brown precip after filtering twice the filtrate gets cloudy

Either the air or some reaction goes on slowly & Para precipitates out when acid gradually Exceeds Para

I tried alcohol saturated with Ammonia & then but on HCl, had to use considerable but finally white Ethyl Carbamate came out like the beautiful needles as when 6/4 is used —

There is very little [illegible] but work [illegible] HCl combines with 6/4 to form a good compound —
Not nearly as much alcohol as 6/4 but plenty to get Enough of the Compound — the Value of it is the work —

The precipitation from 142 is getting very small, but looks as if most in No 1 precipitated & very little in #2

Water Cooled [illegible] with 2-
grains [illegible] & 1 HCl
after a white precipitation
brown dirty stuff came
the more I filter it but not
near as bad as No 1 which
only 1/2 % from [illegible]

[illegible] I [illegible]
to come out as [illegible]
as No 1.

I [illegible] 10 grains
the [illegible] silky [illegible] stuff
would not dissolve in 145
grains [illegible] or anywhere
near it as Gold-[illegible]
would commence to.

Reg Var with 1/8% of Hydrochloric Acid Conc 10 gals Var made - Made same way as $FeCl_2$ open -

Flowing Room 982 5455 B

Var did not work good, great many dampers - lot of patching up - Room temp 97° Viscosity 70 5.05 temp of Var 86°

Reg Ochs Lab -

Made 274
OK 236
Dis 38

Lift. Ckd 4
Pull outs 1
Cracked 33

86% S S

Prints 236 Printed
41 Discards -
195 OK -

82% with all discards
226 are really OK
others not due to Varnish

Discards
Pull out Margin 3 - Cracked in Music 3
Cracked 29 -
Poor Prints 7
Ckd feed line 7
" Music 1

95.7%

Here is record of tests with old Penta Coated Screens days -

Sept 20 - Special Var 981
Reg Var with 1/4% of Ferric Chloride to 100 of Resin -
10 gals made - Used 150 alcohol to 100 Resin - Viscosity 3.17 room temp 100° Varnish made in oven where was loss some alcohol
Flowing room 981 - 544 B
Var looks good did not have any breakaway room temp 94.7 Vis at 70° 3.41 min temp of Var normal 88°
Transfer very poor, attack to plates very poor from Lee Comer.
Reg Ochs Lab 300 made
OK 49
Discards 251

Lift. Ckd 20
Pull outs 231

S S S

93.4% without pull outs

Prints 49 printed
10 Rejected

1 Knock
1 Cracked
1 Burd.
6 ckd

1 poor print

80%

16% OK

4473

Made up a Varnish
145 alcohol
10 6/4 HCl Combs bottom only about
6 dissolved. No pain or Penta
Condensing on boiler plate
quick no gases there is
no doubt about a HCl 6/4
Salt that is as good as
6/4 + Cl with the bromine
of Ammonia when condensing
May not want either
Para or Penta – Varnish very
thin –

Seems lots bubbles
+ acts bad –

Sept 23 & 24th Penta now used
tested by us Moore No 2
was practically free from
acid and iron – scarcely
a trace of either, put in HCl
to see if any metallic Fe
there was none, washed
acid out,

No 1 Edison is the Raw
stuff from Wyandotte
had lots acid + iron
washed it free of
both –

Penta old dissolves nearly
all in Boiling Petroleum
Benzine if filtered leaves
resinous + rather dark
but if bone black used

its a very light tint of red
& OK — will take of what
dual was is what we want

Moore No 2 after fumigating
is very much harder
than Edison No 2

No lime was in either —

New Batch Ponta.
3% Hcl. boiled-washed free acid has very
little known it - its very stiff tar

903- Van Lat 546 — Black 842-907
Over mixed 7 hours
Transferred 3871
OK 3378
Discards 493

Lift, cked 13
Pullouts 285
Bards 41
3 = 6

87 1/2

Crackled corners 63
" Varnish 57
Weatherproof defect. 34.

Machine Expert. to welders
Checked – Rpd Van 983 –
Van 547 – Blank 842-907
Oven at 7 hours
Total Transf'd 366
OK 255 –
Discards 111

Lift Ckd 1
Pull Out 88
Ckd Wave 20
Mechanical 2

69%

93% welded pallets

Print.
983 –
Printed 256
Prints OK 220
Discards 33 – Not printed 13

Ckd in Music 11
Ckd in feed line 14
Ckd on feed line 2
Poor print 6

87%

Old Pents
903 – Van 548
842-907 Mixed Scrap 7 hours
Transferred 1986
OK 1291
Discards 695 –

Lift Ckd 7
Pull Out 603
Ckd Wave 29
Ckd Varnish 47
Mechanical 9

65%

95.4% welded pallets

Dup of 982 -
982-551 Var this is dup of 982 made on
Sept 21/14 Except new Penta, new Resin
(1/8) % of Hydrochloric Acid
Alcohol 142% Visco 3.10 Room temp
109 Fahr
Flooring room - Flowed sept 24/14
at 4:30 p.m all day run -
room temp 86° Fahr temp Var 86°
Visco at 70° 3.57 am -
room temp 92° temp Var 90° Visco
at 70 4.28. PM -
Flows good - Remarks better
results from this lot of Var
than I had from 5445 B. Reclaimed
wood flowed Sept 22 not as many
dimples breakaways - Very few
thin edges in fact Var is good - Pade

Transfers 5075
OK 2983
Discards 2092

58%

Lifts Ckd 11
pullouts 1830
Cracks 209
Mechanical 45

94.8% without lifts

Fresh Varnish

Sept	Resin	Added	% Transfers		Temp flowing Room	
1.	18.4	3.6	89 - 88 -			
2	18.4	3.6	90.			
3	17.9	4.1	91.			
4	"		92			
8	"		78.	53		
9	"		73	76		
10 AM	"		77			
10 PM	19.3	2.7	83.			
11	"	"	75			
14	"	"	59			
15	"	"	68			
16	18.6	3.4	73			
17	"	"	81	80		
18	"	"	85			
19	"	"				
20	"	"				
21	"	"	83		82°	
22 am	"		87		89	
22 PM	17.1	4.9	65		84	
23	"	"	79		84	
24	"	"	61		"	Hel Sept,
25	16.9	5.1				
26	"	"				

Notes –

Alcohol in Vacuum Varies from
115% To 100% Room –
To 155% & yet. got good results
so there is no appreciable
bad effects from more or less alcohol
but about 142% appears
best — This is from all
the data for 2 months, over very
good & very bad periods —

When there is a high percent
of OK transfers, There is from
4 to 10 times more Cracked
transfers than Pull out transfers
When there is a Low percent of
OK transfers – it is just
the Opposite, there are from
4 to 8 times more Pull outs,
than Cracked transfers –
The Cracks dont vary much

Temp in NY Weather Bureau

Sept	7 AM	7 PM
1	70	81
2	73	86
3	75	78
4	67	66
5	57	71
6	61	72
7	69	73
8	55	60
9	50	60
10	49	65
11	53	59
12	57	59
13	58	60
14	57	60
15	60	63
16	62	69
17	61	76
18	68	82
19	68	63
20	60	73
21	64	86
22	73	80
23	71	80
24	74	68
25	58	64
26	50	58
27		
28		
29		
30		
31		

It appears as if there was no connection between the amount of free alcohol in Resin. 16% or 21% - one gives as good results as the other of Cowna to afterwards added to bring acc to 22%

15 @ 16% appears to be the best amount to leave in the Resin & then add alcohol to bring to 22% - ?

90% better OK Transfers from following Varnishes

632 Var

	Alcohol	Alcohol Soluble
382	145	
383	148	
386	145	
387	125 *	
391	148	
394	145	
395	148	
397	145	
398	148	
403	148	
406	148	
407	125 *	
408	145	
409	145	
412	148	
418	148	
431 x	130	102
439	145	60
440	145	60
442 *	148	70
443	148	18.4
446	155 *	18.6
452	155	20.1

Phenolic Resin

	903 Var	phenolic Re
500	140	17.7
501	141	17.6
502	142	17.6
503	142	17.6
504	145	17.9
505	145	17.9
506	145	17.9
507	142	17.3
508	142	17.8
509	142	17.8
510	142	17.8
523	135 +	15.4
225	135	17.9
228	142	17.9
229	142	

632 Var

2% Para

7.9% 6/4

4% Penta

Transfers OK Below 75% —

903 —

	alcohol	phenolic Resin
529	142	17.9
530	142	"
532	142	"
531	142	"
534	142	19.3
535	136 x	"
536	136	"
537	150 *	"
538	150 x	"
539	142	18.6
548	136 x	17.1
549	142	17.1

903 Var is

½% Para

8% 6/4

6% Penta

632 Var

434	140	63

854 Var

433	115 *
456	155

981 Var

544	150

983 Var

547	136

984 Var

550	152

Ratio of Pull outs To Cracked Transfers

Cracked	Pull out
15	1
5	1
10	1
10	1
4	1
27	1
1	1
8	1
4	1
32	1
32	1
10	1
7	1
2	1
1½	1
1	1
4	1
2	1
2	1
2	1
8	1
4	1
3	1
10	1
14	1
10	1
6	1
54	1
3	1
3	1
1	1¼ July 22
2½	1
1	1
1	1
1	4
1	3½

Cracked	Pull out
1	4
1	6
1	2
1	2
1	2
1	2
1	1½
1	1
1	2
1	3
1	3
1	5
1	10

July 22 turned + there was 3 to 8 times more pull outs than Cracked

Lots of Penta

Lot #	Inoc'd	Used up	
28	20.8	July 9	
29	18.4	16	7
30	24.6	22	6
31	18.9	29	7
32	17.8	Aug 5	6
33	17.9	8	3
34	29.4	12	4
35	22	17	5
36	24.3	24	7
37	20.4	Sept 3	9
38	21.9	22	19
39	21.2	27	5
40	21.1	now used	

why so long

C1135

Aug	% OK Treat	Tent Room where Varnish mixed	Humidity 8 am	Humidity 8 pm
1	88	93		
3	92	89-91		
4	82	84-82		
5	81	80-91		
6	88	82-92		
7	77	82-100		
8	73	92-98		
10	87	88-101		
11	81	93-97		
12	93	90-98		
13	84	85-92		
14	89	81-92		
15	94	90-90		
17	89	87-95		
18	95	80-100		
19	93	93-93		
20	93	91-91		
21	94	89-89		
22	93	83-83		
24	94	83-93		
25	89	77-79		
26	84	76—		
27	89	74-81		
28	82	77-83		
31	83	77—		
Sept				
1	85	81—	77	79
2	88	88—	87	82
3	90	89	81	76
4	94	83	55	64
8	92	72-75	73	49

			Humidity 8 am	Humidity 8 pm
9th	69	73-76	67	55
10	78	73-79	73	47
11	65	75—	67	68
14	76	71—	64	63
15	74	72	67	72
16	66	82	46	47
17	67	95-100	60	48
18	75	103—	64	31
21	83	100	77	36
22	83	105-103	51	60
23	81	100-109	76	72
24	74	109—	78	69

It looks of it was good to mix Varnish in a warm room say 100 Fahr

No Ice box after Sept 18th

Temp flowing Room	
90 Fahr	81-90-93-89-84-88-86 % good Transfer
89 "	65,
88 "	87-89-86-90-92-88-87-85-79 "
86 "	9542-87-92-84-88-87-88-83-79-82-78 "
84 "	85-90-87-86-84-75
83 "	90
82 "	90 91-93 "
80 "	90-90-94-85-86 87-92-
78 "	90-89-90-90-
76 "	92-95-92.
74	80—

It seems as if temp of flowing room was of little consequence as long as it is about 76 Fahr -

Low % of OK Transfers

903 Var

	Phenol in Resin
529	17.9
530	17.9
531	17.9
532	17.9
534	19.3
535	19.3
536	19.3
537	19.3
538	19.3
539	18.6
548	17.1
549	17.1

6% Penta ½ Para 8 [illegible]

854 Var

433	17.1
456	20.8

981 Var

544	18.6

632 Var

434	17.1

983 Var

547	17.1

984 Var

550	17.1

It would seem that Resin with 15@16% free phenol in resin would be best. If 15% then 7% unacted upon Phenol would be added to make up the 22% we always use in Varnish.

632 Var has 4 penta 2 para
903 " " 6 Penta-½ para

High % of OK Transfers

632 Var

Var	Phenol in Resin
382	16.8
383	16.8
386	16.8
387	16.8
391	16.9
394	16.9
395	16.9
397	16.9
398	16.9
403	16.8
406	16
407	16
408	16.6
409	16.6
412	16.5
418	16.5
431	17.1
439	19.1
442	18.4

903 Var

500	17.7
501	17.6
502	17.6
503	17.6
504	17.9
505	17.9
506	17.9

632

443	18.4
446	18.4
452	20.1

903

Var #	Phenol in Resin
507	17.3
508	17.8
509	17.8
510	17.8
523	18.4
525	18.4
526	17.9
527	17.9

854 Var

385	16.8
389	16.8
393	16.9

903 V

546

Vat #	free Phenol in Resin %	
382 to 390	16.8	Average % good Transfer 90%
391 to 398	16.9	" 92%
399 to 403	16.8	88.8
404 to 407	16	88.5
408 to 410	16.6	91
411 to 424	16.5	86.7
425 to 430	17.1	85
431 to 437	17.1	77.8
438 to 441	19.1	86
442 to 448	18.4	89.8
449 to 453	20.1	89.3

Trichlorophenol never tried in Dye Vat

It Combines with NH_4 from saturated alcoholic sol of NH_4 to a precip insol in water but sol in alcohol

Trichlorophenol very sol in alcohol

By saturating alcohol with 6/4 & then pouring in strong sol of Trichlorophenol there is no precipitate – it does not take the ammonia from 6/4 apparently, gives clear solution

Apparently Trichlophenol will absorb the NH_3 when 6/4 is acting –

Trichlorophenol is a great & powerful Crystalizer –

Notes

Trichlorophenol strong does not precip Paraphenylenediamin strong when poured into it The solution becomes ~~[illegible]~~ darker — but not very much

None of the ingredients precipitate out Trichloro, 6/4 para,

Even the Trichlorophenolate of NH_4 does not precip —

Strong sol of 6/4 in Al is precipitd in long silky needles by Hydrochloric & these are not nearly as sol as 6/4. They are not NH_4Cl but a true compound with HCl — Dont think more than 5% will dissolve in 145 alcohol

This substance is very soluble in water —

Notes —

I find that Penta resorcine after add that alcohol will take out warm 110 Fahr about Will if phenol pure is added the whole of resorcine dissolves but when alcohol is added most of it precipitates out but a large part remains in solution & if filtered off is deep red If now more alcohol is added to clear red solution there is no further precipitation

showing phenol aids greatly to dissolve more penta — if this substance is good ~~[illegible]~~ then 15% phenol in Resin or lower will be best then we can use 7% phenol free in the alcohol & this gets more of this substance

CITU

Note

I don't think 6/4 + Trichlorophenol combine as apparently they crystalize out separately but not sure —

The Trichlorophenolate Na by crystalizes in pin cushion rosettes —

Trichlorophenol + Para possibly crystalizes together somewhat but not certain

6/4 seems to condense Trichlorophenol slightly —

I note that the Varnish made with Trichlorophenol instead Pentz dries slow — also shows tendency to make bubbles —

We need an insoluble lot of Penta from Michigan — I find if we put pieces phenol in it it semi dissolves, when heated then keep adding alcohol + keeping almost boiling you can keep on adding alcohol + finally on filtering practically all dissolves + no amount of dilution with alcohol will precipitate it — acts as if phenol combined with it + then it was not in alcohol — The reason it doesn't dissolve in alcohol is probably due to fact all the phenol used in chlorinating pot was chlorinated | therefore the Sol Penta has pro-phenol in + to this that makes it soluble = I once tried Penta with 6/4 & found it partially condensed this

probably proves that there is free phenol in oil of Petia —

There is a big find —

NY Weather Bureau

Sept	Humidity 8 AM	8 PM
1	77	79
2	87	82
3	81	76
4	55	64
5	68	48
6	74	83
7	86	43
8	73	49
9	67	55
10	73	47
11	67	68
12	64	64
13	55	66
14	64	63
15	67	72
16	46	47
17	60	48
18	64	31
19	61	79
20	78	57
21	77	36
22	51	60
23	76	70
24	78	64
25	78	60
26	62	44
27		
28		
29		
30		

Var Lot #	Date Flooded	Remarks	Transcribe %
382	July 6	Fair 92	92
383A	7	Fair	90
854-385A	7	Varnish heavy	95 ✓
" 384	7	Plates look good * 80	80
632-386	7	Fair plates	92
" 387	8	Fair "	94
854-389	8	Fair "	92
632-390	8	Fair "	85
632-391	9	Fair "	90
854-393	9	Fair "	90
632 394	9	Fair "	95
632-395	10	Varnish heavy - fair plates	95
632-396	10	Fair plates	89
632 397	10	Fair "	90
632 398	11	Fair "	94
854-399	11	Good "	87
632 400	13	Var Thick plates fair	87
854-401	13	Good plates.	89
632 402	13	Varnish heavy fair plates	87
632-403	14	Fair plates	90
854-404	14	Varnish Thin	86
632-405	14	Fair plates	88
632 406	15	Good "	90
854 407	15	Fair "	90
632-408	15	Fair "	92

Lot	Date Flooded		
632-409	16	Fair Plates	93
854-410	16	Work good	89
632-411	16	Plates fair	87
362 412	17	" " Var Too thick nearly all plates pateled	92
854-413	17	Var too thin, plates sweat, many breakaways + slipbaks	84
632-415	17	Fair plates Var Too Thick	86
632-416	18	" "	84
854-417	18	plates fair	86
632-418	20	Var Too thick	90
854-419	20	Var too thick	88
632-420	20	Var too Thin	88
632 421	21	" Very poor had steam on all day	88
854 422	21	good plates, flowed by night man	83
632-423	21	Poor plates, breakaways —	86
632-424	22	Var dont work right, little better than yesterday	85
854-425	22	Flowed good, dry good —	81
632-426	22	Very Thin plates poor, breakaways —	84
632-427	23	Var creaps, plates fair —	86
854 428B	23	OK plates fair — N work	87
632-429B	23	Thin - breakways - 45% look muddy	n work 85 many tailles
854 430A	24	Plates good	87
632-431	24	Very good	90
632-432	24	Good	87

CM77

Vur #	date flowed			
854- 433	25	Four plates	F	65
632 434	25	Var very thin plates very good	VP	67
854 435	27	Var good	G	79
632 436 B	27	"	G	79
632 437 B	27	" Very good	G	78
854- 438 A	28	Plates good		82
632 - 439 B	28	good		91
632 - 440 B	28	Var very good		93
854 441 A	29	Var good		78
632 442 B	29	plates fair		92
632 443 B	29	Plates good		93
854-444 A	30	Var two thin plates good		84
867 445 B	30	plates very good Vuscos 2.30		89
632- 446 B	30	plates good		94
854 448 A	31	"		87
872 447 A	31	Flowed freely plates look good		X
632 449 B	31	Var good		87
873 450 B	31	plates look fair Vis 6.21		X
632 452 B	31	plates good		92
Aug	1			
854- 453 A	1	plates good		89
632 454 B	1	Plates very good		89
854- 455 A	3	Var good		90
867 456 B	3	plates very good Vuscos 1.4		95 VG
632 457 B	3	plates good		85

Lot #	date flowed		
878 458 B	3	Var very fine, all plates good, Vis 3.41	84
854 468	4	plates good	82
879 469	4	Var covers plates good Viscos 3.43	90
880 470	4	These plates the best we ever had Vis 4.37	87
632 471 B	4	plates good	83
632-472 B	4	"	86
854-473 A	5	"	81
892 474 B	5	Works very good Viscos 2.31	76
632 475 B	5	Var poor, breakaways + unlevely	86
854-476 A	6	plates good	83
899 477 B	6	Works very bad, breakaways —	76
899 478 B	6	Looks bad, streaks + breakaways —	76
899 479 A	7	Plates Rotten — Viscos 3.37	87
899 480 B	7	plates very bad, had steam on all day	86
899 481 B	7	plates bad had breakaways + streaks	87
899 482 A	8	Var fair -	87
899 483 B	8	Var wavy, flowed slow plates perfect	87
[illegible]	[illegible]	3% breakways no dimples, window wide open	
899 484 A	10	Vis high — plates not good, breaks + dimples	96
899 485 B	10	flowed bad, streaks dimples, breakaways	93
899 486 B	10	Vis high, but flowed more even, no dimples no streaks, or breakaways	87
899 487 A	11	plates good G	74
899 488 B	11	"	88
903-489 B	11	Works fine - plates good	94

(1745)

Van #		date fixed		
903 -	490 A	12	good	95
903	491 B	12	plates good	81
903	492 B	12	"	88
903	493 A	13	plates fine.	90
903	494 B	13	Van fair	92
903	495 B	13	plates good	86
903	496 A	14	Van good	93
903	497 B	14	"	94
903	498 B	14	plates good	89
903	499 A	15	"	85
903	500 A	17	"	92
903	501 B	17	plates poor	94
903	502 B	17	"	96
903	503 A	18	plates good	93
903	504 B	18	"	93
903	505 B	19	"	94
903	506 A	19	"	93
903	507 A	20	"	93
903	508 A	21	plates fair	94
903	509 A	21	"	94
903	510 A	22	plates good	90
903	511 A	24	Van fair	89
903	512 B	24	Van good, 9 gall Vinny	84 dark
903	513 B	24	" "	"

				Humidity		
903 -	514 A	25th	Van fair - plates Crazy Crazy Crap thin Cent			84
"	515 B	25	" "			84
"	516 A	25	Van good			88
"	517 B	25	Van thin plates fair			82
"	518 A	26	Van very good			82
"	519 B	27	Van good			82
"	520 A	28	"			83
"	521 B	28	Van fair			83
"	522 A	31	good			85
		Sept		8 am	8 pm	
903.	523 A	1	Van good	77	79	90
"	524 B	1	"			89
"	525 A	2	Van fixed when 1st used but 3 hours after OK -	87	82 -	91
903 -	526 A	3	Van fair	81	78	91
"	527 A	4	plates good	55	64	92
903	528 A	8	Van very good	73	49	79
"	529 B	8	Van good	[illegible]	[illegible]	74
"	530 A	9	"	67	55	74
"	531 B	9	good			77
"	532 A	10	good	73	47	77
"	533 B	11	"	67	68	83
"	534 A	11	"			75
"	535 A	14	"	64	63	60
"	536 A	15	"	67	72	69

						Humidity 8 am	8 pm
972	537 B	15	Var Wks fine, plates look good Vis 3.33	63	VG	67	72
973	538 B	15	" " " Vis 4.43	35	VG		
903	539 A	16	Works good	74	G	46	47
"	540 A	17	Var good	82			
"	541 B	17	"	80		60	48
"	542	18	"	83		64	31
"	543 B	21	"	83		77	36
981	544 B	21	Var Wks good - not many breakaways	16	S G		
982	545 B	21	Var dont wk good, great many dimples + lot patching to do	86			
903-	546 A	22	Var wks bad, lots dimples, lots patching - breakaways, thin Edges	87		51	60
983	547 B	22	Var flowed good, plates look fine Viscos at 70 4.45 Room Temp 96°	70			
903-	548	22	Var good plates good	65	G		
903	549	23	Var good plates fair	79	F	76	70
984	550 B	23	Var Wks fine, plates look good Viscos 3.23 Room 92 - Var 82	61	VG		
982	551 A	24	Better results from this lot Var than from lot 545 B not as many dimples or breakways + only few thin Edges its good. Vis 3.57			78	64
903	552 A	25	Var fair few dimples + thin Edges or patching				

Notes

Stopped spraying powder
Moore thinks around 8th
Sept find out —

Up to Aug 6th used
2% Para in plate
Varnish —

Used 1% Para from 6th
till 11th used 1%
from Aug 11th to date
1/2% used

Sept 1 left off old filler started
single 1/2 bags Cong — used
single 1/2 bag till Aug 10
2 bags on 11th since used 3 bags

Notes -

If phenol alcohol Pentra residue ~~and~~
used in alcohol alone, bad Reg
Resin added it redevelops
as the free phenol of the
resin helps to make it sol —
I mean that which precipitates out on adding alcohol
Also little Benzol added
to alcohol aids its sol

It is probably the Resin which
develops in petrol Benzine
Coats + precedes alcohol
developing some — If Residue
used in phenol + alcohol —
is treated H of Benzine largest
part develops + is precipitated
by alcohol, The alcohol is
very red + develops it now develops
more while the Benzine holds
the Tar + floats to top

Might be good way get rid
of Resin Tar —

987 ½ Para 8% 6/4.
no penta — 1/ 6/4
Alcohol 150% Resin has 16.5
free phenol added 5.5 more
10 gals —

This is Req without Penta

Sgg

987 Var Sept 29/14

770 plates oven #7 Top coils not
cut out. 7 hours
Var plate inspection

Bubbles	8	Discards
Uneven	13	
Dirt	8	
Raised	1	
Crackers	0	
Dimples	1	
Chipped	0	
	31	

Var flowed freely - Color green
Creeps off pillars - few dimples
thin edges - plates look good

Commercials

Bubbles 653
Uneven 81

Transfers Var. lot 555-blank 842-907
Total Transfd 368
Total OK 155
" Discards 213

42%

Pull Coils 91
Var Cracked 107
Mechanical 15

No penta ½ para in this Var

988 - 15 ½ para 8% 6/4 —
5% Alpha Naphtol.
150 alcohol. Resin has
16.5 free phenol added 5.5%
fresh phenol. NO penta
10 gals made in Open kettle
was there para -

As Naphtol Condensies + there is no
Penta in this - It Cant be the
Penta-filling out that causes
pull outs

988 Lot # 556 B Oven 7
Top coils not cut out 7 hours oven
Var discard Commercial
Bubbles 5 Bubbles 576
Uneven 1 Uneven 103
Dust 5
11

Color Var grey green (loose)
freely - plates dont look good
Creeps too much, Thin center.
about usual amount of patching up

842-907 Blanks
Transfer 340
Total OK 11
Discarded 329

Pull outs 310
Var Cracked 8
Mechanical 11

989 is, ½% Para 8% 6/4
5% Trichlorophenol.
no penta 150 alcohol
16.5 free phenol in Resin
added 5.5 more phenol
10 gals made in Open mixer

Trichlorophenol like alpha
Naphthol Condensed a lette

989 Lot # 55713 #08 oven 7 hours
756 plates

Plate inspectn		Comcl	
Bubbles	11	Bubbles	345
Uneven	16	Uneven	360
Dirt	7		
Ranced	17		
	56		

This Var is similar to 987 but lighter in Color plates look good

Transfers —
Transferred 353
OK 205
Discards 148 58%

Pull outs 101
Cracked Var 20
Weatherwood 27

990 Req Var Except melted all the phenol that is to 6½ added in the 6/4 then added right amount of alcohol then followed in sequence then para 1/2 & 6/4 Req then add Resin –

990 – Lot 558/13 Var looks like #903 acts like it only better This Var is fine.

640 Plates 8 over 7 hour
Top coils not cut out.

Plate inspection
Bubbles 12
Uneven 0
Dirt 2
Raised 344
363 Discard

Comal –
Bubbles 277.

Transfer – 139 Transferred OK 86 –
Discards 53 –

Pull Coils 10 –
Old Var 41 –
Mechanical 2

62%